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### **(54) METHOD FOR OPERATING MEMBRANE SEPARATION APPARATUS AND APPARATUS THEREFOR**

(57) Abstract:

**PROBLEM TO BE SOLVED:** To obtain method for operating a membrane separation apparatus which enables energy saving filtration operation, can simply clean a filter medium by removing sludge after the solid-liquid separation of bio-treated wastewater containing activated sludge, etc., can maintain a large amount of filtrate over a long period, and is high in efficiency and a device for the method.

**SOLUTION:** The membrane separation apparatus housing bag-shaped plane membrane elements in which a nonwoven fabric 10-1,000 g/m<sup>2</sup> in base weight and 0.1-200 cm<sup>3</sup>/cm<sup>2</sup>.s in gas permeability is used as the filter medium is installed separately from a bio-reactor for treating activated sludge, a pump is placed between the bio-reactor and the membrane separation apparatus, gas is introduced into piping on the downstream side of the pump, and a

bio-treatment liquid from the bio-reactor is supplied as a gas-liquid mixed flow between the membrane elements installed in the membrane separation apparatus and filtered. After the filtration, by supplying a cleaning fluid from the permeation side of the filter medium to the raw liquid side, fluid back-washing and/or washing by the bio-treatment liquid for cleaning the surface or inside of the filter medium or membrane surface flash cleaning by a gas-liquid mixed flow in which gas is mixed with the bio-treatment liquid are repeated intermittently.

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